I CLAIM:

1. A semiconductor processing apparatus comprising a reaction chamber and one or more vitreous components having an outer surface that is covered at least in part by a devitrification barrier coating.

2. The apparatus of Claim 1, wherein said one or more vitreous components are formed from quartz.

3. The apparatus of Claim 1, wherein said devitrification barrier comprises silicon nitride.

4. The apparatus of Claim 1, wherein said devitrification barrier coating is formed from silicon nitride that has been deposited on said one or more vitreous components using CVD deposition.

5. The apparatus of Claim 1, where said devitrification barrier coating has a thickness between about 1 and 10,000 angstroms.

6. The apparatus of Claim 5, where said devitrification barrier coating has a thickness between about 50 and 5000 angstroms thick.

7. The apparatus of Claim 6, where said devitrification barrier coating has a thickness between about 500 and 3,000 angstroms thick.

8. The apparatus of Claim 7, where said devitrification barrier coating has a thickness of about 800 angstroms thick.

9. The apparatus of Claim 1, where said devitrification barrier coating is formed from the group consisting of silicon nitride, diamond, titanium nitride, titanium carbon nitride, and combinations thereof.

10. The apparatus of Claim 1, wherein said devitrification barrier coating covers an entire portion of said outer surface of said one or more vitreous components.

11. The apparatus of Claim 1, wherein said devitrification barrier coating only covers a portion of said one or more vitreous components that is most susceptible to devitrification.

12. The apparatus of Claim 1, wherein said wherein said devitrification barrier coating covers at least a portion of a quartz sheath of a thermocouple.

13. The apparatus of Claim 1, wherein said apparatus further comprises an upwardly extending projection positioned on a support device, said projection and

support device configured to support a substrate within said apparatus, said projection being covered at least in part by said devitrification barrier coating.

14. The apparatus of Claim 1, wherein said reaction chamber is a chemical vapor deposition reaction chamber.

15. A thermocouple configured for use in a chemical vapor deposition process chamber, said thermocouple comprising:

thermocouple wires;

a vitreous sheath surrounding the wires; and

a devitrification barrier coating covering at least a portion of said sheath.

16. The thermocouple of Claim 15, wherein said vitreous sheath is formed from quartz.

17. The thermocouple of Claim 16, wherein said devitrification barrier coating comprises silicon nitride.

18. The thermocouple of Claim 15, where said devitrification barrier coating has a thickness between about 1 and 10,000 angstroms.

19. The thermocouple of Claim 18, where said devitrification barrier coating has a thickness between about 50 and 5000 angstroms thick.

20. The thermocouple of Claim 19, where said devitrification barrier coating has a thickness between about 500 and 3,000 angstroms thick.

21. The thermocouple of Claim 15, where said devitrification barrier coating is formed from the group consisting silicon nitride, diamond, titanium nitride, titanium carbon nitride and combinations thereof.

22. The thermocouple of Claim 15, wherein said devitrification barrier coating covers an entire portion of said thermocouple.

23. The thermocouple of Claim 15, wherein devitrification barrier coating covers a portion of the thermocouple that is most susceptible to devitrification.

24. The thermocouple of Claim 15, wherein devitrification barrier coating covers a tip of said thermocouple.

25. A method of minimizing divitrification in one or more vitreous components of a chemical vapor deposition process chamber, said method comprising the step of coating at least a portion of said one or more vitreous components with a

barrier layer to protect said one or more vitreous components from processing gases in the chemical vapor deposition process chamber.

26. The method of Claim 25, wherein coating at least a portion of said one or more vitreous components with a barrier layer includes using chemical vapor deposition to form said barrier layer.

27. The method of Claim 25, wherein coating at least a portion of said one or more vitreous components includes forming the barrier layer from silicon nitride .

28. The method of Claim 27, wherein said step of forming the barrier layer out of silicon nitride includes using chemical vapor deposition to form said barrier layer.

29. The method of Claim 27, wherein said step of forming the barrier layer out of silicon nitride includes forming said barrier layer such that said barrier layer has a thickness between about 1 and 10,000 angstroms.

30. The method of Claim 29, wherein said step of forming the barrier layer out of silicon nitride includes forming said barrier layer such that said barrier layer has a thickness between about 500 and 3,000 angstroms thick.

31. The method of Claim 25, wherein coating at least a portion of said one or more vitreous components with a barrier layer includes forming the barrier layer from the group consisting of silicon nitride, diamond, titanium nitride, titanium carbon nitride, and combinations thereof.

32. The method of Claim 25, wherein coating at least a portion of said one or more vitreous components includes coating at least a portion of a thermocouple sheath.

33. The method of Claim 32, wherein coating at least a portion of said thermocouple includes coating a portion of the thermocouple sheath that is most susceptible to devitrification.

34. The method of Claim 32, wherein coating at least a portion of said thermocouple sheath includes covering a tip of said thermocouple sheath.

35. The method of Claim 32, wherein coating at least a portion of said thermocouple includes covering a portion of the thermocouple that is near a susceptor of said chemical vapor deposition process chamber.

36. The method of Claim 25, wherein coating at least a portion of said one or more vitreous components includes coating an entire portion of a thermocouple sheath.

37. A chemical vapor deposition apparatus comprising a thermocouple, said thermocouple comprising thermocouple wires; a vitreous sheath surrounding the wires; and means for minimizing devitrification in said thermocouple.

38. The apparatus of Claim 37, wherein said means comprises a silicon nitride coating.

39. A support device configured to support a susceptor in a chemical vapor deposition chamber, said support device including a plurality of arms, each of said arms having a distal end configured to directly contact and support said susceptor, said distal end being covered at least in part by a devitrification barrier coating.

40. The support device of Claim 39, wherein said support device includes three arms.

41. The support device of Claim 39, wherein said distal end comprises an upwardly extending projection.

42. The support device of Claim 39, wherein said distal end is formed from quartz.

43. The support device of Claim 39, wherein said devitrification barrier coating comprises silicon nitride.

44. The support device of Claim 39, where said devitrification barrier coating is formed from the group consisting silicon nitride, diamond, titanium nitride, titanium carbon nitride and combinations thereof.

45. The support device of Claim 39, wherein said devitrification barrier coating covers an entire portion of said distal end.

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